

## **REMARKS**

In response to the above Office Action, the specification has been amended to include subheadings as required by Rule 77. In addition, claims 1 and 3-9 have been amended to avoid the rejections of claims 1, 3, 6, 8, and 9 under 35 U.S.C. § 112, second paragraph and the noted objections to claims 1 and 4-9. Additional amendments were made to claims 4-6 and 8 to be consistent with claim 1 from which they depend. No amendments were made in view of the cited prior art. Withdrawal of the objections to the claims and rejections under §112 is therefore requested.

Applicant's invention as set forth in claim 1, relates to a process for the preparation of a supported catalyst wherein a support material containing 1-10% of water is contacted with a trialkylaluminum compound and then the resulting material is contacted with a transition metal complex of formula (I). By this process an alumoxane as a cocatalyst component is formed in-situ in the support before being contacted with the transition metal complex. This results in a catalyst which is cheaper to make (by virtue of using an alkyl aluminum rather than an alumoxane) while providing activity in the resultant supported catalyst.

In the Office Action, the Examiner rejected claims 1-10 under 35 U.S.C. § 103(a) for being obvious over Kimberly et al. WO99/46303 (hereafter Kimberly) in view of Chang EP 0323716 (hereafter Chang).

Kimberly discloses catalysts of the type covered by the claims of this case. It also discloses its use in combination with an alkylalumoxane as an activator. However, there is no teaching in the reference that the activator be formed in-situ in the support by combining a support material containing water with an alkylaluminum compound.

Rather, like in the past, the alumoxane was produced in advance and then combined with the transition metal complex to activate it. Nor is there any teaching that suggests to one skilled in the art to add water to the support material; particularly since it is considered to be a catalyst "poison," and then to treat it with a trialkylaluminum compound as claimed.

Chang teaches adding a trialkylaluminum to a silica gel containing about 6 to 10% water as a catalyst support material to form the alumoxane component of a catalyst system.

The Examiner therefore believes it would be obvious to prepare the catalyst of Kimberly by the method taught in Chang.

However, it is submitted that the only suggestion to do so comes from a reading of applicant's specification and not from anything taught by either of these references because Chang has to do with a totally different type of catalyst, namely, a metallocene catalyst. It is so different from the transition metal catalyst of this invention that the man skilled in the art would not assume that technology employed in making metallocene catalysts would necessarily be usable in processes for making transition metal complex catalysts of the type shown in Kimberly and in the claims.

The examples in the specification demonstrate the unobviousness of the invention. Comparative Examples 5 and 6 show an activator/support prepared by adding preformed methylalumoxane (MAO) to dried silica as a support for the Formula (I) complex to form an active catalyst. Example 7 illustrates the preparation of the catalyst by the treatment of "moist" silica with trimethyl aluminum in accordance with the present invention. From the results obtained in polymerizing ethylene (Table

on page 19) it can be seen that the activity and productivity values were higher when the support was made according to the present invention than when made according to Kimberly.

The Examiner's attention is specifically directed to the comparison between Comparative Example 5 and Example 7. In Comparative Example 5 there was slightly more transition metal catalyst used initially than in Example 7 (0.0000515 mol to 0.00005 mol), though analysis of the final catalyst composition showed they contained the same nominal amount of iron, and slightly more methyalumoxane (0.005 mol to 0.00494 mol). In fact, the nominal amount in the final catalyst composition was 12.7% w/w MAO in Comparative Example 5 and 12.5% w/w MAO in Example 7. Yet both the activity and productivity of the catalyst composition of Example 7 was higher than the composition of Comparative Example 5 as shown in the table on page 19.

Thus while it may have been "obvious to try" the method of Chang in preparing the catalyst of Kimberly, there is nothing in Chang to suggest these improved results when the process is used with transition metal complexes as the catalyst. While the activity and productivity values of Example 9 are lower, it is to be noted that here the in-situ cocatalyst being formed was ethylalumoxane. Thus it is not directly comparable with Examples 5-7.

In view of the unexpected results achieved, it is submitted the claimed invention cannot be considered obvious over Kimberly in view of Chang and its withdrawal as a ground of rejection of the claims is therefore requested.

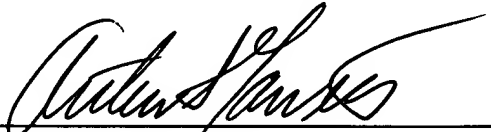
It is believed claims 1-11 are in condition for allowance. In view of the foregoing amendments and remarks, Applicant respectfully requests reconsideration and reexamination of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

FINNEGAN, HENDERSON, FARABOW,  
GARRETT & DUNNER, L.L.P.

Dated: February 2, 2004

By:   
Arthur S. Garrett  
Reg. No. 20,338

652928\_1.DOC